

Romans on the other, in the time of Julius Cæsar. Yet all these were Aryans, and in treating the Americans as one race it is not intended that they are more closely allied than the different Aryan people of Europe and Asia. The best argument that can be used for the unity of the American race—using the word in a broad sense—is the great difficulty of forming any natural divisions founded upon physical characters. The important character of the hair does not differ throughout the whole continent. It is always straight and lank, long and abundant on the scalp, but sparse elsewhere. The colour of the skin is practically uniform, notwithstanding the enormous differences of climate under which many members of the group exist. In the features and cranium certain special modifications prevail in different districts, but the same forms appear at widely-separated parts of the continent. I have examined skulls from Vancouver's Island, from Peru, and from Patagonia, which were almost undistinguishable from one another.

Naturalists who have admitted but four [primary types of the human species, have always found a difficulty with the Americans, hesitating between placing them with the Mongolian or so-called "yellow" races, or elevating them to the rank of a primary group. Cuvier does not seem to have been able to settle this point to his own satisfaction, and leaves it an open question. Although the large majority of Americans have in the special form of the nasal bones, leading to the characteristic high bridge of the nose of the living face, in the well-developed superciliary ridge and retreating forehead, characters which distinguish them from the typical Asiatic Mongol, in so many other respects they resemble them so much that, although admitting the difficulties of the case, I am inclined to include them as aberrant members of the Mongolian type. It is, however, quite open to any one adopting the Negro, Mongolian, and Caucasian as primary divisions, also placing the Americans apart as a fourth.

Now that the high antiquity of man in America, perhaps as high as that he has in Europe, has been discovered, the puzzling problem, from which part of the Old World the people of America have sprung, has lost its significance. It is quite as likely that the people of Asia may have been derived from America as the reverse. However this may be, the population of America had been, before the time of Columbus, practically isolated from the rest of the world, except at the extreme north. Such visits as those of the early Norsemen to the coasts of Greenland, Labrador, and Nova Scotia, or the possible accidental stranding of a canoe containing survivors of a voyage across the Pacific or the Atlantic, can have had no appreciable effect upon the characteristics of the people. It is difficult, therefore, to look upon the anomalous and special characters of the American people as the effects of crossing, as was suggested in the case of the Australians, a consideration which gives more weight to the view of treating them as a distinct primary division.

III. The Caucasian, or white division, according to my view, includes the two groups called by Prof. Huxley *Xanthochroi* and *Melanochroi*, which, though differing in colour of eyes and hair, agree so closely in all other anatomical characters, as far, at all events, as has at present been demonstrated, that it seems preferable to consider them as modifications of one great type than as primary divisions of the species.

Whatever their origin, they are now intimately blended, though in different proportions, throughout the whole of the region of the earth they inhabit; and it is to the rapid extension of both branches of this race that the great changes now taking place in the ethnology of the world is mainly due.

A. The *Xanthochroi*, or blonde type, with fair hair, eyes, and complexion, chiefly inhabit Northern Europe—Scandinavia, Scotland, and North Germany—but, much mixed

with the next group, they extend as far as Northern Africa and Affghanistan. Their mixture with Mongoloid people in North Europe has given rise to the Lapps and Finns.

B. *Melanochroi*, with black hair and eyes, and skin of almost all shades from white to black. They comprise the great majority of the inhabitants of Southern Europe, Northern Africa, and South-west Asia, and consist mainly of the Aryan, Semitic, and Hamitic families. The Dravidians of India, and probably the Ainos of Japan, the Maoutze of China, also belong to this race, which may have contributed something to the mixed character of some tribes of Indo-China and the Polynesian Islands, and, as before said, given at least the characters of the hair to the otherwise Negroid inhabitants of Australia. In Southern India, they are probably mixed with a negrito element, and in Africa, where their habitat becomes continuous with that of the Negroes, numerous cross races have sprung up between them all along the frontier line. The ancient Egyptians were nearly pure *Melanochroi*, though often showing in their features traces of their frequent intermarriage with their Ethiopian neighbours to the south. The Copts and fellahs of modern Egypt are their little-changed descendants.

In offering this scheme of classification of the human species, I have not thought it necessary to compare it in detail with the numerous systems suggested by previous anthropologists. These will all be found in the general treatises on the subject. As I have remarked before, in its broad outlines it scarcely differs from that proposed by Cuvier nearly sixty years ago, and that the result of the enormous increase of our knowledge during that time having caused such little change, is the best testimony to its being a truthful representation of the facts. Still, however, it can only be looked upon as an approximation. Whatever care be bestowed upon the arrangement of already acquired details, whatever judgment be shown in their due subordination one to another, the acquisition of new knowledge may at any time call for a complete or partial re-arrangement of our system.

W. H. FLOWER

NOTES

WE have to announce the death of Mr. Geoffrey Nevill, who died at Davos Platz on the 10th inst. He was for many years Assistant Superintendent in the Calcutta Museum, and had charge there of two conchological collections, which were entirely arranged and named by him. He did some good work there.

IN a recent issue we gave some account of the Liverpool Corporation free lectures, which were then in the experimental stage. Since then the lectures have been continued every winter, and we should like to call the attention to them of those of our readers who are interested in the promotion of elementary scientific knowledge among the lower classes, and especially those who have, either as town-councillors or magistrates in their respective towns, influence in their own localities. We have before us a programme of the present course, copies of which can be obtained from Mr. P. Cowell, Liverpool Free Public Library. The lectures are given every Monday, Tuesday, Wednesday, and Thursday from January 5 to March 12 inclusive, in the Rotunda Lecture Hall of the Library, which holds more than 1500 people. The entire expense of them is defrayed by the Corporation, and admission is perfectly free. A member of the Corporation invariably occupies the chair at each lecture. Mr. Lant Carpenter lectured there on the night of February 12 upon "Sunspots and their Connection with Weather Changes," to an audience of great extent. It was composed almost exclusively of "the great unwashed," who had come in straight from their work, or, alas, in some cases, from their enforced idleness; the Liverpool dock porters were there in

their hundreds! The audience, though larger than usual, was not exceptionally so. Notwithstanding the somewhat technical and abstruse nature of the subject, involving an explanation of the application of the principles of spectrum analysis to solar physics (in which the oxyhydrogen lantern illustrations were, during half the lecture, a great assistance), this large audience of *unskilled labourers*, men and youths, listened for nearly an hour and a half with the closest attention, strongly resenting the solitary attempt at interruption, and at the close of the lecture were most enthusiastic in their approval. Why cannot the same thing be done in other large towns, and must we wait for London municipal reform to get it done in the metropolis?

IN *La Nature* of February 14, under the title of "The Struggle for Existence," is a curious account of an attack on a dog by a flock of crows. The account of the affray is given by M. Magin, director of St. Albert Glassworks, Anecht, Nord. M. Magin states that in January last, when the ground was covered with snow, his dog (a *Griffon*) was in a field adjoining the workshop, when he was attacked by a flock of crows. About a hundred were in the field, but only about thirty actually joined. Dividing themselves into two parties, one attacked the poor dog before, and another behind. Rising about two metres above ground, they would plunge their beaks invariably into a bleeding wound. When the dog was rescued by the workmen he was in a dilapidated state, his eye torn out, and a deep wound in the neck. The crows remained about the place for some time after the rescue of the dog.

THE Statistical Society proposes to celebrate the jubilee of its foundation on June 22 and 23 next. It is proposed to invite to the celebration distinguished statisticians from foreign countries, several of whom, it is hoped, will be Government representatives.

THE Mersey tunnel was opened on the 13th inst.; it was begun in the end of 1879. It may be stated that the length of the projected railway is two miles and a half, from James Street, Liverpool, to Green Lane, Tranmere; and from shaft to shaft the distance immediately beneath the River Mersey is about one mile. For the two stations in James Street, Liverpool, and Hamilton Square, Birkenhead, the necessary excavations were some time ago completed.

FOR the first time, we believe, in English warfare, balloons are to be utilised in the Soudan Campaign. The transport *Queen* sailed on Monday from the Thames with the Balloon and Telegraph Corps for the Suakin Expeditionary Force. Three balloons are taken out with all the necessary appliances to be used for taking observations of the enemy's positions. All have been made at the School of Engineering. Compressed hydrogen for inflating the balloons is carried in iron cylinders, 12 feet long by 1 foot diameter, but these are only for a reserve supply, and, weighing half a ton each, will be left behind at the base of operations, where, also, a gas factory and pumping station will be put up. Materials for this purpose are on board the ship, including a small gas-holder, and all the necessary chemicals for making more gas are provided. About a hundred lighter cylinders, easily carried by men, form part of the equipment. Each of these, which are 9 feet long, contains 120 feet of hydrogen in a compressed state, and, as they are emptied, they will be taken back to be recharged at the Suakin station. One waggon, containing one ton of stores, will suffice for a balloon ascent. Captive ascents only will be made, in which the balloons will be tethered by rope or wire, both of which are taken. Communication by telephone will be established between the car and the ground, and the chief employment of the balloons will be to take observations of the enemy's movements.

A MEETING, called together with the object of obtaining a more extended support for the Parkes Museum, was held at the Mansion House on Friday, the Lord Mayor

(Mr. Alderman Nottage) presiding. The Lord Mayor, in opening the proceedings, said the object of the organisers of the Parkes Museum was to promote the physical welfare and happiness of, he might say, the human race. Capt. Douglas Galton read a statement on behalf of the joint committee of members and council, from which it appeared that the museum was founded at a meeting presided over by Sir William Jenner in July, 1876, in memory of the late Edmund Alexander Parkes, who was the first Professor of Hygiene in this country. The Queen and other members of the Royal Family had subscribed to the funds, and had taken great interest in the Institution. Out of it had arisen the International Medical and Sanitary Exhibition, and the Health Exhibition. The Museum is open free for a part of every day in the week. The lectures have been given for the benefit of the Working Men's Club and Institute Union, the Institution of Builders' Foremen and Clerks of Works, and the Metropolitan Building Societies. The Museum has also been placed at the disposal of teachers of hygiene, and classes have attended from University College, St. Bartholomew's Hospital, Guy's Hospital, the Royal Engineers, and the Young Men's Christian Association. The reading-room, with its valuable library of sanitary literature, has always been a distinguished feature of the Museum, and has recently been enhanced by the addition of 1500 volumes contributed by the Council of the International Health Exhibition. For upwards of eighty years the Museum has been maintained by voluntary contributions. To keep it open to the public it has become necessary that at least 1000*l.* should be raised by the end of the present month. The Duke of Cambridge moved "That the statement which has been read affords conclusive evidence that the Parkes Museum of Hygiene is meeting a great educational want, and is worthy of increased support." There were two chief considerations which presented themselves to his mind—the first was, that the Society must get out of the difficulties it was in; and next, the Museum must be established on a sure footing, so as to enable its advantages to be extended. The premises at present occupied by the Society must be re-engaged, and it would be necessary to widen its utility in coming years. Mr. Ernest Hart said he thought the wealthy and practical City of London could not be proud of its attitude towards this valuable Institution. Nearly all the supporters of the Museum came from the West-end, and were largely from among the professional and medical classes. The importance of the Museum might be gathered from an outside indication—namely, that the idea had been imitated, and the example extended in the United States, in France, in Italy, and Japan. He thought they were entitled to support, not only from the great merchants and bankers of the City, but from the Corporation and the City Companies. The Parkes Museum was a mere skeleton sanitary museum. It was without a laboratory, without lectures, without demonstrators. In other countries the State subsidised their Health Museums, and that it was deserving of the highest recognition from a merely commercial point of view had been conclusively shown by Sir James Paget's statistics as to the pecuniary national loss from preventable disease. A list of subscriptions amounting to 1006*l.* was announced.

THE death is announced of Mr. Hodder M. Westropp, the well-known archæologist, at the age of sixty-four years.

PROF. JOHN MARSHALL on Saturday, in the theatre of the Royal College of Surgeons, delivered the annual Hunterian oration before a distinguished medical audience. The orator considered the mental attitude which "the Founder of Scientific Surgery" would probably assume towards the active work and salient opinions of our times. The revelations of microscopical research and the growth of a new department of anatomy, histology, would have delighted Hunter, and his acquiescence in the truth of a modified cell-theory of the formation of tissues, and in

the doctrine of the protoplasmic origin of animal and vegetable life, could be easily imagined. Not only as a physiologist, but as a pathologist, Hunter was a great vivisectionist, and it might be taken for granted that he would rank himself with those who now claim the right of man, for beneficial purposes, or even in the pursuit of knowledge, to attempt to discover the processes of animal life by tests and trials on living animals. While averse to unnecessary repeated experiments, his large views of the unity of the "principle of life" and of the community of organisation and of action throughout the whole animal kingdom would lead him to disregard the objections of those who insist on the uselessness of experiments on animals so far as concerns their application to man. Hunter did not spare his own body, but subjected himself to an inoculation experiment of a very grave character, in order to test opinions on a pathological question, and to put to proof the efficacy of certain variations in treatment. Since his time the inquiry as to the functions of the nerves and the nerve centres had made great strides, almost exclusively by means of experiments. Had Hunter lived now he would have been a staunch evolutionist, his belief being that "from the variations produced by culture it would appear that the animal is so susceptible of impression as to vary Nature's actions, and this is even carried into propagation." Hunter expressed the opinion that in time it might perhaps happen the human race should be exterminated by specific poison diseases; but he regarded it as more probable that many poisons were extirpated, and that new ones might arise in their stead every day.

THE National Fish Culture Association are about to establish a Museum of British and Foreign Fishes, and a large number of valuable specimens have already been presented for preservation. The project has met with unmistakable signs of approbation, and is likely to receive the hearty co-operation of the ichthyological world. The latest addition to the collection is an exceedingly fine specimen of a trout weighing 23 lbs.

In an address at the last meeting of the Society of Meteorology of France, M. Hervé-Mangon described the growth of meteorological science in that country. It is curious, he said, that in the first part of this century, meteorology had fallen into strange discredit with the most distinguished men of science, one of whom called it "the poor science." The Hydrometric Society of Lyons, founded in 1840, was the only one in France occupying itself with atmospheric phenomena; the *Meteorological Annual* was not founded till 1849, and the Society of Meteorology till 1853. In 1855 Leverrier created the system of telegraphic warnings. In 1878 the Society succeeded in getting the Government to reorganise the system of telegraph weather reports, and to create a central meteorological bureau, while numerous observatories had been erected all over the country, and Paris was now in connection with 1500 stations. In 1852 France participated in the International Congress of Meteorology at Brussels, but for twenty-six years after that they took part in no similar reunion. But, owing to M. Hervé-Mangon's exertions, the Congress of 1878 was invited to be held in Paris, and in 1879 France took formal part in the Congress at Rome.

M. HANSEN-BLANGSTED, of Paris, has recently published, under the title of "Un Progrès," an account of the manner in which the metric system of weights and measures is extending over Europe. Confining himself to Germany, Austro-Hungary, and Norway since 1870, he points out that in German geography down to 1869 all the measures were given in the system of the country. In 1865 *Petermann's Mittheilungen* expressed geographical measures of length, height, depth, and superficial area in German or English measures. In 1869 French measures were employed, that is, they were put side by side with the English and German. Since 1875 the metric system is almost exclusively employed, and it is always added where a writer

does not use it. Prior to 1870 the metric system was rarely employed in the *Geographische Jahrbuch*, in 1876 it had made much progress, and now it is almost the only one in use. Dr. Daniel's large geography in four volumes, the fifth edition of which was published by Dr. Delisch in 1882, is used everywhere throughout Germany, and is an undoubted authority. Here all the geographical measures are given according to the metric system; the German system is not used even in parenthesis. In Austria we find that Dr. Umlauf uses the metric system exclusively in his "Rundschau für Geographie und Statistik." In "Das eiserne Jahrhundert" also the same is the rule. Dr. Umlauf has lately published a work devoted wholly to the geography of the Austrian empire, which is widely spread and used in schools. He employs in it only the metrical system. In Norway, the geographical works of the former Minister, M. Broch, both in Norwegian and French, have had much effect in propagating the knowledge and employment of the metric system, for he uses the latter side by side with the Norwegian measures. For the first time in the geography of P. Geelmuyden, published at Christiania in 1882, the metric system is exclusively adopted, the Norwegian measures being placed in parentheses. This work forms one of the text-books for primary and advanced instruction in the schools.

M. NIKITINSKY has recently made a series of experiments for determining whether the amount of ash given by burnt tea-leaves really increases with the decrease of the quality of tea, as was asserted a few years ago. Taking different kinds of tea, the price of which was respectively 72, 64, 34, 12·8, and 12·12 Chinese *taels*, he found that they gave respectively the following percentage of ash: 5·16, 5·21, 5·66, 5·91, and 6·32. The difference is thus very small. A cheap green "brick-tea" gave a percentage of 6·87. The Orenburg teas, which are sold under the name of Buray-tea, at the price of 12 and 5 roubles for 16 kilogrammes, and are adulterated with leaves of *Epilobium angustifolium*, gave a far greater quantity of ash, namely, 7·87 and 10·43 per cent., thus affording a means for discovering this kind of adulteration.

THE Report of the Botanical Record Club for 1883 is just published. For those interested in the details of the geographical distribution of British plants, these annual publications form an indispensable supplement to the posthumous edition of H. C. Watson's "Topographical Botany," published in 1883.

PROF. STRICKER'S work, "Studien über die Sprachvorstellungen," has now been translated into French by F. Schwiedland. This French edition, which has been enlarged by some new chapters by the author himself, is published by Félix Alcan at Paris.

OLDENBOURG of Munich has just published "Die Hieracien Mittel-Europas. Monographische Bearbeitung der Piloselloiden mit besonderer Berücksichtigung der mitteleuropäischen Sippen," by C. von Nägeli and A. Peter.

AN officer of the French Staff has gone to Algiers and Tunis in order to continue the work of the late Col. Roudaire. But it is not likely that he will succeed, although he is strongly supported by M. de Lesseps. In the colony the opinion is strongly against the scheme. The argument of its opponents is the insalubrity which would result from the presence of these salt waters in an extremely hot country without any appreciable current, and frequent changes of level owing to evaporation.

WE understand that the *Quarterly Journal of Microscopy and Natural Science* will in future be published by Messrs. Baillière, Tindall, and Cox.

MR. A. S. OLIFF and Mr. J. D. Ogilby have been appointed assistants in the Australian Museum.

SHOCKS of earthquake continue to be felt in the south of Spain. A telegram from Granada on the 12th stated that slight shocks continued to be felt at Alhama, and on that day there was a shock at Terre del Campo near Jaen. There were also shocks in the evening of the 14th at Granada and Velez Malaga.

Die Natur takes advantage of the attention at present directed to South Africa, to recall the story of the first astronomical expedition to the Cape. The first expedition ever sent across the seas for such a purpose as astronomical observation was that of Jean Richer, which went to Cayenne on behalf of the Paris Academy, in order that simultaneous observations of Mars should be made there and in Paris. The Cape expedition took place thirty years later. Baron Krosigk, its promoter, had founded a private observatory at Berlin, where observations of the moon's culminations were made for a long period, and observers were sent to the Cape to make corresponding observations there. It was hoped that by collating the observations in both places the moon's parallax would be obtained. So far as this was concerned, the expedition failed. Wagner, the founder and first head of the public observatory at Berlin, carried out his part of the work in Prussia, but Kolb, who had charge of the Cape expedition, was guilty of great negligence, so that the results were inconsistent and unsatisfactory. In 1719 he published a book entitled "*Caput bonæ spei hodiernum*," in which he described everything at the Cape except what he was sent to do. The work which Krosigk hoped to do then was not completed for another forty years, when Lacaille and Lalande made the necessary observations, the one at the Cape, the other in Paris.

MR. CARL ARMERUSTER will begin a course of five lectures at the Royal Institution on "The Life, Theory, and Works of Richard Wagner," on Saturday, February 28 (with vocal and instrumental illustrations).

IN order to ascertain the truth of the assertions recently made by certain ichthyologists in regard to the capacity of Canadian salmon to exist in sea water, an experiment has been made in the South Kensington Aquarium, several specimens being deposited in one of the salt-water tanks, where they lived for eight days, when they expired in rapid succession. This entirely dissipates the theory which obtained credence hitherto in numerous quarters.

THE additions to the Zoological Society's Gardens during the past week include two Laughing Kingfishers (*Dacelo gigantea*) from Australia, two Hooded Crows (*Corvus corax*) from Connemara, Ireland, presented by Lady Brassey, F.Z.S.; a Sharp-nosed Crocodile (*Crocodilus acutus*) from Nicaragua, presented by Mr. C. G. Brown, M.R.C.S.; a Common Boa (*Boa constrictor*) from South America, deposited; a Cook's Phalanger (*Phalangerista cooki* ♀) from Australia, a Globose Curassow (*Crax globicera*) from Central America, two Stanley Parrakeets (*Platycercus icterotis* juv.) from Western Australia, purchased; two Long-fronted Gerbilles (*Gerbillus longifrons*), born in the Gardens.

OUR ASTRONOMICAL COLUMN

AN ANCIENT OCCULTATION OF JUPITER.—In Roger de Hoveden's Chronicle, under the year 756, we read:—"Eodem anno Balthere anachorita vitam sanctorum secutus est, et migravit ad Dominum; Luna autem sanguineo rabore superducta octavo Kalendas Decembris quindecima ætate, id est plena, siquæ paulatim decrescentibus tenebris ad lucem pristinam pervenit; nam, mirabiliter, ipsam lunam sequente lucida stella et pertranseunte tanto spatio cam antecedeat illuminatam, quanto sequebatur, antequam esset obscurata." (*Chronica Magistri Rogeri de Hoveden*, edited by William Stubbs, M.A., vol. i. p. 7.) Simeon of Durham records the phenomenon in similar

terms, and also dates it in A.D. 756; but this has been long known to be a mistake, the eclipse of the moon, to which reference is made, having taken place on the evening of November 23, A.D. 755.

Calvisius at first supposed that the star which was occulted by the moon at the time of this eclipse might have been the "Oculus Tauri" or Aldebaran, and submitted the point to computation, though, as Pingré remarks, this was unnecessary, as a star with a latitude of more than 5° could not be occulted by an eclipsed moon. Struyck, in the first edition of his well-known geographical and astronomical treatise, published in 1740, stated that, on calculating the place of the moon, he had found there was no bright star near her at the time, and it occurred to him that perhaps the planet Jupiter might have been occulted by the eclipsed moon, which, on applying "Whiston's Tables," he ascertained to have been actually the case: the tables referred to were those of Halley in their early form. Struyck found the time of the planet's disappearance 6h. 30m. at London, and that of the reappearance 6h. 57m. (see Zach's *Monatliche Correspondenz*, i. 576).

The following results will probably supply a much closer approximation to the actual circumstances of the phenomenon recorded by the English historians.

For the elements of the eclipse of the moon we have—

G.M.T. of opposition in R.A., 755, November 23, 6h. 25m. 7s.

R.A.	...	...	...	...	63	3	15
Moon's hourly motion in R.A.	...	...	...	...	30	54	
Sun's	"	"	"	...	2	41	
Moon's declination	...	...	...	...	21	4	20 N.
Sun's	"	"	"	...	21	16	37 S.
Moon's hourly motion in declination	...	...	...	...	8	38	N.
Sun's	"	"	"	...	0	28	S.
Moon's horizontal parallax	...	...	...	...	54	16	
Sun's	"	"	"	...	0	9	
Moon's true semi-diameter	...	...	...	...	14	47	
Sun's	"	"	"	...	16	16	

The sidereal time at Greenwich noon was 16h. 7m. 34s. The moon was full at 6h. 30m.

From the above elements we find—

						h.	m.
First contact with the shadow	...	...	...	Nov. 23,	4	38	
Beginning of total phase	...	...	...	"	5	47	
End of total phase	...	...	...	"	7	18	
Last contact with the shadow	...	...	...	"	8	27	

Employing Bouvard's Tables of Jupiter the following are the positions of the planet:—

Paris M.T.	Apparent R.A.	Apparent decl.
h.		
7	64 23 25	20 50 12 N.
8	64 23 3	20 50 9 N.

The log. distance of Jupiter from the earth was 0.6163.

Calculating the circumstances of the occultation for London, we find with the above data that the disappearance would take place at 7h. 35m., and the reappearance at 8h. 33m.; the former would therefore occur while the moon was still partially eclipsed, and the latter a few minutes after she emerged from the earth's shadow.

It may be mentioned that the moon's place has been determined in the same manner as for the occultation of Mars observed by the Chinese at Siganfou B.C. 69, February 14, and that of Venus, A.D. 361, March 20, at Nankin, the phenomena being well represented in both cases, as previously detailed in this column. No doubt the introduction of Leverrier's Tables of Jupiter would somewhat modify the times of disappearance and reappearance on November 23, 755, here given; our object has been merely to confirm Struyck's explanation of the recorded phenomenon.

ASTRONOMICAL PHENOMENA FOR THE WEEK, 1885, FEBRUARY 22-28

(FOR the reckoning of time the civil day, commencing at Greenwich mean midnight, counting the hours on to 24, is here employed.)

At Greenwich on February 22

Sun rises, 7h. 1m.; souths, 12h. 13m. 39.6s.; sets, 17h. 26m.; decl. on meridian, 10° 1' S.: Sidereal Time at Sunset, 3h. 37m.